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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,300	02/07/2001	Marc Adam Kaplan	Y0R9-2000-084US1 (872-472	5641

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EXAMINER	
RYMAN, DANIEL J	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/778,300	KAPLAN, MARC ADAM	
	Examiner	Art Unit	
	Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 23-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 23-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/2/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doeringer et al. (USPN 5,361,256) in view of Cheng (USPN 6,600,724) in further view of Coile et al. (USPN 6,061,349).

4. Regarding claims 1 and 14, Doeringer discloses a method, which can be implemented in software, for the multicast distribution of a message from a first real machine (application in subnetwork W) (col. 2, lines 39-45) through a network of message processing machines (nodes) to one or more message receiving machines (multicast destinations) (col. 2, lines 39-45), wherein the network is organized into two or more cells (subnetworks) including machines (col. 2, lines 39-45), the method comprising the steps of: selecting a spanning tree rooted in the cell containing the first real machine, and comprised of the cells (col. 9, lines 23-27 and col. 10, line 20-col. 11, line 3); determining one or more receiving cells including a receiving machine on the selected spanning tree (col. 9, lines 23-27 and col. 10, line 20-col. 11, line 3); selecting a node in each of the one or more receiving cells to receive the message (col. 7, lines 34-47); routing the

message to each selected node in the one or more receiving cells in the spanning tree (col. 9, lines 23-27 and col. 10, line 20-col. 11, line 3); and delivering the message to each message receiving machine within the one or more receiving cells (col. 9, lines 23-27 and col. 10, line 20-col. 11, line 3).

Doeringer does not expressly disclose having the selected spanning tree comprise link bundles or selecting a route to each selected node from a routing choice table of the first real machine including potential routing choices to reachable nodes relative to the first real machine. Cheng teaches, in a routing system, selecting a spanning tree (SPT) (col. 5, lines 52-64) rooted in the node (col. 9, lines 39-42) comprising link bundles (col. 6, lines 65-66 and col. 7, lines 5-7), selecting a route to a node in each of the one or more receiving cells to receive the message (col. 10, lines 17-29 and col. 12, lines 40-48), and selecting a route from a routing choice table of the first real machine including potential routing choices to reachable cellules relative to the first real machine (col. 1, lines 36-40; col. 10, lines 17-29; and col. 12, lines 40-48) where each node requires a routing table in order to send information to another node (col. 1, lines 36-40). Cheng's system makes it possible to share load and guard against link failures (col. 10, lines 17-29 and col. 12, lines 40-48). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to select a spanning tree comprising link bundles and to select a route to each selected cellule from a routing choice table of the first real machine including potential routing choices to reachable cellules relative to the first real machine in order to enable the system to share load and to guard against link failures.

Doeringer in view of Cheng does not expressly disclose selecting a cellule in each of the one or more receiving cells to receive the message, wherein each cellule comprises a set of one

or more virtual machines within a cell at an end of a link bundle. Coile teaches, in a data distribution network, implementing one or more virtual machines within a real machine in order to efficiently utilize the resources of the physical machine (col. 1, lines 44-49 and col. 2, lines 24-43). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to route the message according to precomputed cellule distribution tables associated with the each real machine, wherein a cellule comprises one or more virtual machines within a cell at an end of a link bundle in order to efficiently utilize the resources of the physical machine.

5. Regarding claim 2, Doeringer in view of Cheng in further view of Coile discloses implementing one or more virtual machines within a real machine (Coile: col. 1, lines 44-49 and col. 2, lines 24-43).

6. Regarding claim 3, Doeringer in view of Cheng in further view of Coile discloses that a link is one of a virtual link between two virtual machines, and a real link between two real machines (Coile: col. 1, lines 44-49; col. 2, lines 24-43; and col. 6, lines 22-42).

7. Regarding claim 13, Doeringer in view of Cheng in further view of Coile discloses the step of scaling the message handling capacity of the network (Cheng: col. 8, lines 15-24).

8. Claims 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doeringer et al. (USPN 5,361,256) in view of Cheng (USPN 6,600,724) in further view of Coile et al. (USPN 6,061,349) as applied to claim 1 above, and further in view of Annapareddy et al. (USPN 5,602,839).

9. Regarding claims 4, Doeringer in view of Cheng in further view of Coile discloses that the multicast distribution of the message is along links (Doeringer: col. 9, lines 23-27 and col. 10, line 20-col. 11, line 3) and further comprises the step of routing the message through the

selected spanning tree according to precomputed distribution tables associated with the each machine (Cheng: col. 5, lines 52-64). Doeringer in view of Cheng in further view of Coile does not expressly disclose that each cellule distribution table includes a first distribution set of cellules to be used if the message is received from a neighbor in the same cell and a second distribution set of cellules to be used if the message is received from a neighbor in another cell. Annapareddy teaches, in a routing system, having a first distribution set of routes (level 2 table) to be used if the message is received from a neighbor in the same group (cell) and a second distribution set of routes (level 1 table) to be used if the message is received from a neighbor in another group in order to allow for adaptive and dynamic routing with respect to a particular network layer (layer 1 or 2) (col. 2, line 60-col. 3, line 37). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have each cellule distribution table include a first distribution set of cellules to be used if the message is received from a neighbor in the same cell and a second distribution set of cellules to be used if the message is received from a neighbor in another cell in order to allow for adaptive and dynamic routing with respect to a particular network layer.

10. Regarding claim 5, Doeringer in view of Cheng in further view of Coile in further view of Annapareddy discloses that the step routing further comprises the step of determining a routing choice table for each real machine (Cheng: col. 6, lines 13-30 and col. 6, lines 40-60).

11. Regarding claim 6, Doeringer in view of Cheng in further view of Coile in further view of Annapareddy discloses that the multicast distribution is according to the cellule distribution table and a message distribution tag including a flagged list of virtual machines (Doeringer: col. 10, line 20-col. 11, line 3).

12. Regarding claim 7, Doeringer in view of Cheng in further view of Coile in further view of Annapareddy discloses that the routing choice table selects machines and links according to one of random choice, round-robin least busy, least-busy, preserve message order, and preserve message order by hashing on origin identification (Cheng: col. 10, lines 17-29 and col. 12, lines 40-48).

13. Regarding claim 8, Doeringer in view of Cheng in further view of Coile in further view of Annapareddy discloses that the step of determining a routing choice table further includes the step of determining a failover route for redirecting a message (Cheng: col. 10, lines 17-29 and col. 12, lines 40-48).

14. Regarding claim 9, Doeringer in view of Cheng in further view of Coile in further view of Annapareddy discloses that the step of determining a routing choice table further includes the step of exchanging routing information included in the routing choice table of each machine upon the happening of an event (Cheng: col. 6, lines 13-30 and col. 6, lines 41-60).

15. Regarding claim 10, Doeringer in view of Cheng in further view of Coile in further view of Annapareddy discloses that an event includes one of a machine failure and a machine recovery (Cheng: col. 6, lines 53-60).

16. Regarding claim 11, Doeringer in view of Cheng in further view of Coile in further view of Annapareddy does not expressly disclose that the message distribution tags can be one of compressed, factored between internal and external machines relevant to a sending machine, and compressed and factored; however, Doeringer in view of Cheng in further view of Coile does disclose the use of message distribution tags (Doeringer: col. 10, line 20-col. 11, line 3). Examiner takes official notice that it is well known in the art to compress packet information,

including header information, in order to efficiently utilize bandwidth. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to compress the message distribution tags in order to efficiently utilize bandwidth.

17. Regarding claim 12, Doeringer in view of Cheng in further view of Coile in further view of Annapareddy implicitly discloses determining an updated message distribution tag for the message relevant to the internal and external machines of the sending machine, wherein the sending machine can be one of the first real machine and a receiving machine for forwarding the message to one or more additional receiving machines (Doeringer: col. 10, line 20-col. 11, line 3 and Coile: col. 1, lines 44-49 and col. 2, lines 24-43).

18. Claims 23, 25, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doeringer et al. (USPN 5,361,256) in view of Cheng (USPN 6,600,724).

19. Regarding claims 23 and 25, Doeringer discloses a method for the multicast distribution of a message from a publishing client through a network of message processing machines to a first subscribing client (multicast destination), wherein the network is organized into two or more cells (subnetwork) including client machines (nodes) (col. 2, lines 39-45), the method comprising: determining, by the first subscribing client (gateway), whether the publishing client is an external neighbor outside a first cell of the first subscribing client or an internal neighbor inside the first cell of the first subscribing client (col. 1, lines 36-40; col. 10, lines 17-29; and col. 12, lines 40-48) where the gateway will not transmit the multicast packet to the subnetwork on which it received the packet; forwarding the message from the first subscribing client to an internal subscribing neighbor client, and not to external neighbors, upon determining the publishing client to be an external neighbor (col. 1, lines 36-40; col. 10, lines 17-29; and col. 12,

lines 40-48) where the gateway forwards the multicast packet to "internal" neighbors when the source node is "external" to the subnetwork; and forwarding the message from the first subscribing client to an external subscribing neighbor client upon determining the publishing client to be an internal neighbor (col. 1, lines 36-40; col. 10, lines 17-29; and col. 12, lines 40-48) where the gateway forwards the multicast packet to "external" neighbors when the source node is "internal" to the subnetwork.

Doeringer does not expressly disclose having the selected spanning tree comprise link bundles. Cheng teaches, in a routing system, selecting a spanning tree (SPT) (col. 5, lines 52-64) rooted in the node (col. 9, lines 39-42) comprising link bundles (col. 6, lines 65-66 and col. 7, lines 5-7). Cheng's system makes it possible to share load and guard against link failures (col. 10, lines 17-29 and col. 12, lines 40-48). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to select a spanning tree comprising link bundles in order to enable the system to share load and to guard against link failures.

20. Regarding claim 28, Doeringer in view of Cheng suggests tagging the message (target subnetwork field), wherein a tag indicates an intended recipient client, whether the message has been received from an internal neighbor or external neighbor, whether the message has been received from an internal neighbor virtual machine or from an external neighbor virtual machine (Doeringer: col. 10, lines 20-64).

21. Claims 24, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doeringer et al. (USPN 5,361,256) in view of Cheng (USPN 6,600,724) as applied to claim 23 above, and further in view of Coile et al. (USPN 6,061,349).

22. Regarding claim 24, Doeringer in view of Cheng does not expressly disclose excluding a subscribing client in a cellule in which the first subscribing client implements a virtual machine, wherein each cellule is a disjoint subset of virtual machines within a cell. Coile teaches, in a data distribution network, implementing one or more virtual machines within a real machine in order to efficiently utilize the resources of the physical machine (col. 1, lines 44-49 and col. 2, lines 24-43). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to exclude a subscribing client in a cellule in which the first subscribing client implements a virtual machine, wherein each cellule is a disjoint subset of virtual machines within a cell in order to efficiently utilize the resources of the physical machine since the physical machine, which implements the virtual machines, would have already received the packet.

23. Regarding claim 26, Doeringer in view of Cheng does not expressly disclose excluding a virtual machine of a subscribing client within the first cell of the first subscribing client upon determining the publishing client to be an internal neighbor. Coile teaches, in a data distribution network, implementing one or more virtual machines within a real machine in order to efficiently utilize the resources of the physical machine (col. 1, lines 44-49 and col. 2, lines 24-43). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to exclude a virtual machine of a subscribing client within the first cell of the first subscribing client upon determining the publishing client to be an internal neighbor in order to efficiently utilize the resources of the physical machine since the physical machine, which implements the virtual machines, would have already received the packet.

24. Regarding claim 27, Doeringer in view of Cheng does not expressly disclose determining whether a cellule in a second cell of the first subscribing client in which the first subscribing

client implements a virtual machine has received the message via a virtual machine of a second subscribing client; and excluding a subscribing client within the second cell from receiving the message from the first subscribing client. Coile teaches, in a data distribution network, implementing one or more virtual machines within a real machine in order to efficiently utilize the resources of the physical machine (col. 1, lines 44-49 and col. 2, lines 24-43). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine whether a cellule in a second cell of the first subscribing client in which the first subscribing client implements a virtual machine has received the message via a virtual machine of a second subscribing client; and to exclude a subscribing client within the second cell from receiving the message from the first subscribing client in order to efficiently utilize the resources of the physical machine since the physical machine, which implements the virtual machines, would have already received the packet.

Conclusion

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DJR

Daniel J. Ryman
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